REMARKS

Claims 1-7 and 9-13 are pending in this application. New Claims 10-13 have been added. Claims 1-7 and 9 have been amended. Support for the new claims is found in the specification and claims as filed. No new matter has been added in this response.

Objection to the Specification

Claim 9 has been amended such that the terminology discrepancy identified in the Office Action has been corrected. In view of the amendment, Applicant respectfully requests that the objection be withdrawn.

Claim Objections

Claim 7 was objected to for informalities related to the term "sixth passageway." Claim 7 has been amended to recite instead a "fifth passageway." In view of the amendment, Applicant respectfully requests that the objection be withdrawn.

Claim Rejection 35 U.S.C. § 112 second paragraph

Claims 1 and 9 have been rejected under 35 U.S.C. § 112, second paragraph, as indefinite. Applicant has amended Claim 1 to recite, *inter alia*, a "piston reciprocatingly mounted within the vertically oriented cylinder, the piston having a top surface configured to be in contact with liquid in the vertically oriented cylinder, the piston further having a bottom surface configured to be in contact with a hydraulic fluid acting against the bottom surface of the piston in a direction of movement of the piston." Applicant has amended Claim 9 to clarify the structure of the apparatus and to remove the phrase "pressure release."

In view of the amendments, Applicant respectfully requests that the rejection be withdrawn.

Statutory-Type Double Patenting Under 35 U.S.C. § 101

The Examiner has provisionally rejected Claims 1-9 as claiming the same invention as that of Claims 2-10 filed on July 28, 2996 in co-pending U.S. Application No. 10/587,903. Because multiple separate claim sets were filed on the same day in the '903 Application, the Examiner was kind enough to attach the particular set over which the present claims were rejected. However, the amended Claims 1-9 of the present application are not coextensive in scope with Claims 2-10 of the '903 Application or any of the other claim sets that were concurrently filed. For example, independent Claim 1 of each of the claim sets filed concurrently

in the '903 Application recites a limitation of a "hollow piston rod," which limitation is not present in amended Claim 1 of the present application. Because Claims 1-9 as amended are not coextensive in scope with those claims currently pending in the '903 Application, Applicant respectfully requests that the provisional rejection be withdrawn. Additionally, because there is confusion regarding the pending claims in the '903 Application, Applicants will provide an amendment with a current claim set in the prosecution of the '903 Application.

Claim Rejection under 35 U.S.C. § 103(a)

Claims 1-5 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,193,476 to Sweeney ("Sweeney") in view of U.S. Patent No. 3,148,629 to Sutliff ("Sutliff"). To establish a *prima facie* case of obviousness, three basic criteria must be met: first, the prior art reference (or references when combined) must teach or suggest all the claim limitations; second, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; finally, there must be a reasonable expectation of success. *See* M.P.E.P. § 2143. Sweeney in combination with Sutliff fails to teach or suggest all of the claim limitations, thus a *prima facie* case of obviousness cannot be established.

Amended Claim 1 recites, *inter alia*, a "piston type pumping apparatus configured for pumping a liquid, comprising . . . a piston reciprocatingly mounted within the vertically oriented cylinder, the piston having a top surface configured to be in contact with liquid in the vertically oriented cylinder, the piston further having a bottom surface configured to be in contact with a hydraulic fluid acting against the bottom surface of the piston in a direction of movement of the piston; a piston rod connected to the piston and extending slidably and sealingly through a first aperture in the bottom of the vertically oriented cylinder, wherein the piston rod has a bottom surface; a reload chamber situated below the vertically oriented cylinder, the piston rod extending slidably and sealingly into the reload chamber through a second aperture in the reload chamber, the piston rod having a third passageway for liquid extending from the bottom surface of the piston rod to the top surface of the piston, such that the piston rod connected to the piston is configured to permit passage of liquid therethrough, wherein the bottom surface of the piston rod is situated within the reload chamber, wherein the bottom surface of the piston rod is configured such that liquid in the reload chamber acts upwardly against the bottom surface of the piston rod

in a direction of movement of the piston and piston rod, and wherein the bottom surface of the piston rod has an area smaller than the top surface of the piston, whereby liquid in the vertically oriented cylinder acting downwardly on the top surface of the piston exerts a greater force on the top surface of the piston than liquid in the reload chamber acting against the bottom surface of the piston rod."

Sweeney does not disclose a piston pump comprising "a piston rod connected to the piston and extending slidably and sealingly through a first aperture in the bottom of the vertically oriented cylinder [and] a reload chamber situated below the vertically oriented cylinder, the piston rod extending slidably and sealingly into the reload chamber." In contrast, Sweeney discloses a pump cylinder 45 and a production tube 47 having a bottom end 49 and a surface end 48. See Sweeney at col. 3 lines 55-56 and Figure 1. Thus, Sweeney discloses a pump with a plunger entirely in a single chamber, but does not disclose a reload chamber situated below a vertically oriented cylinder or a piston rod extending through a first aperture in the vertically oriented cylinder and extending through a second aperture in the reload chamber.

Sutliff likewise does not disclose a piston pump comprising "a piston rod connected to the piston and extending slidably and sealingly through a first aperture in the bottom of the vertically oriented cylinder [and] a reload chamber situated below the vertically oriented cylinder, the piston rod extending slidably and sealingly into the reload chamber." Instead, Sutliff discloses a pump with an upper barrel 12 tapering to a lower barrel 13 of smaller diameter. See Sutliff at col. 2 lines 16-24 ("[W]hich barrels are connected together by a tapering tubular adapter 14 which has threaded engagement with adjacent ends of said barrels."). Further, Sutliff states that its

> upper plunger 31 has an outer diameter which slidably fits within the upper barrel 12 and the lower plunger 32 has an outer diameter which slidably fits in the lower barrel 13. These fits are close enough so that there is little leakage longitudinally between each of the upper and lower plungers and the respective upper and lower barrels in which they reciprocate during the operation of the pump. Sutliff at col. 2 lines 49-56.

Thus, Sutliff does not disclose a reload chamber situated below a vertically oriented cylinder. The upper and lower barrels 12 and 13 are not two separate chambers. Sutliff thus also does not disclose a piston that extends through a first aperture in a vertically oriented cylinder and through a second aperture in a reload chamber. As noted above, the upper plunger and the

lower plunger of Sutliff each have a diameter that "slidably fits within the upper barrel 12 [and] the lower barrel 13" respectively. However, the plungers of Sutliff do not extend through a first and a second aperture. Thus, Sutliff does not disclose "a piston rod connected to the piston and extending slidably and sealingly through a first aperture in the bottom of the vertically oriented cylinder [and] a reload chamber situated below the vertically oriented cylinder, the piston rod extending slidably and sealingly into the reload chamber." Because neither Sweeney, nor Sutliff discloses "a piston rod connected to the piston and extending slidably and sealingly through a first aperture in the bottom of the vertically oriented cylinder [and] a reload chamber situated below the vertically oriented cylinder, the piston rod extending slidably and sealingly into the reload chamber" their combination does not either. Because Sweeney and Sutliff, alone or in combination, fail to teach all of the elements of amended Claim 1 and thus its corresponding dependent claims, a *prima facie* case of obviousness cannot be established. Applicant therefore respectfully requests the rejection be withdrawn.

Even if a *prima facie* case could be established, however, it would be rebutted by evidence of unexpected results and commercial success as set forth in the two declarations of Richard Frederick McNichol attached hereto. Affidavits or declarations containing evidence of criticality or unexpected results, commercial success, long-felt but unsolved needs, failure of others, skepticism of experts, etc., must be considered by the examiner in determining the issue of obviousness of claims for patentability under 35 U.S.C. § 103. *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1538, 218 USPQ 871, 879 (Fed. Cir. 1983).

In the first declaration, Mr. McNichol asserts that embodiments claimed in the present application have achieved unexpected results when compared to pumps known in the art. The modeled efficiencies of pumps of the present invention not only greatly exceed the efficiencies of common pumps used in industry, but also exhibit greater efficiencies then industry experts thought possible. These unexpected results provide evidence of non-obviousness.

In the second declaration, Mr. McNichol, as president of Hydro Pacific Pumps, Inc., which owns a license to the present application, asserts that the particular embodiments of the present invention, which include limitations and features not disclosed by the prior art, have achieved surprising commercial success because the hydraulic gravity ram pumps of the present invention exhibit pump efficiencies heretofore unknown in the art. Because little advertising or

marketing of the embodiments claimed in the present application has occurred, the commercial success enjoyed by Hydro Pacific Pumps, Inc. is primarily due to the unique aspects of the claimed embodiments.

Any *prima facie* case of obviousness would therefore rebutted, and Applicant respectfully requests withdrawal of the rejection.

Claim Rejection under 35 U.S.C. § 103(a)

Claims 6-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Sweeney in view of Sutliff and U.S. Patent No. 3,135,210 to English ("English"). Claim 8 has been cancelled. To establish a *prima facie* case of obviousness, the prior art references when combined must teach or suggest all the claim limitations. *See* M.P.E.P. § 2143. English includes no disclosure overcoming the deficiencies of Sweeney and Sutliff, thus a *prima facie* case of obviousness cannot be established.

As discussed above, Sweeney and Sutliff fail to teach "a piston rod connected to the piston and extending slidably and sealingly through a first aperture in the bottom of the vertically oriented cylinder [and] a reload chamber situated below the vertically oriented cylinder, the piston rod extending slidably and sealingly into the reload chamber." English discloses a device for "boosting the pressure in a second hydraulic fluid line by utilizing a first hydraulic fluid under relatively low pressure acting upon an engine piston directly connected to a pump piston." English at Col. 1, lines 6-12. English discloses multiple pistons disposed within various cylinders. See e.g., English at Col. 3 lines 1-25. English states, however, that it is "an object of the present invention to provide a rodless, multiplex hydraulic pump." See English at Col. 3, lines 74-75; Col. 4, lines 3-4, 8-10, 16-17, 19-20 and 22-24. These "rods" in English are mechanical rods used to move the piston. English therefore fails to teach or suggest "a piston rod connected to the piston and extending slidably and sealingly through a first aperture in the bottom of the vertically oriented cylinder [and] a reload chamber situated below the vertically oriented cylinder, the piston rod extending slidably and sealingly into the reload chamber." First, English does not disclose a reload chamber situated below a vertically oriented cylinder. Second, English does not disclose a rod extending through an aperture in a reload chamber situated below a vertically oriented cylinder. Finally, English does not even disclose a "piston rod having a third passageway for liquid extending from the bottom surface of the piston rod to the top surface of

the piston, such that the piston rod connected to the piston is configured to permit passage of liquid therethrough"; none of the "rods" in English include a passageway for liquid.

Because Sweeney, Sutliff and English, alone or in combination, do not teach or suggest all limitations of amended independent Claim 1, and thus its dependent Claims 6-7 and 9, Applicant respectfully requests that the rejection be withdrawn.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, Applicant is not conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not infer that the Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

Co-Pending Applications of Assignee

Applicant wishes to draw the Examiner's attention to the following co-pending applications and granted patents of the present application's assignee.

Serial Number	Title	Filed
6,193,476	1 ½ PISTON FORCE PUMP	09/13/1999
10/587,903	HYDRAULIC GRAVITY RAM PUMP	07/28/2006

Conclusion

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns that might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number below. Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: 11/29/07

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